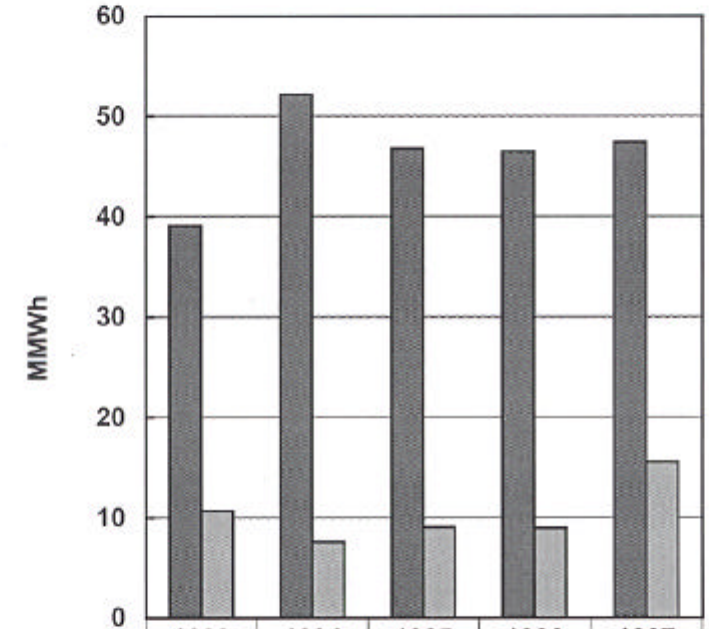
ELECTRICITY TRANSACTIONS ACROSS INTERNATIONAL BORDERS - 1997

December 1998



	1993	1994	1995	1996	1997
Imports	39.1	52.2	46.8	46.5	47.5
Exports	10.7	7.6	9.1	9	15.6

U.S. Department of Energy
Office of Fossil Energy
Coal & Power Import and Export

ELECTRICITY TRANSACTIONS ACROSS INTERNATIONAL BORDERS 1997

SUMMARY

This report summarizes the electricity trade between the United States and Mexico and Canada during Calendar Year 1997. The information used was reported to the Department of Energy (DOE) by the holders of Presidential permits and electricity export authorizations as listed in each of the regional summaries.[1] The energy values reported represent scheduled transactions. This often differs from the other method of recording electric energy transactions, that is, metered flows.

Table 1 contains a summary of the amount of electricity imported into and exported from the U.S. and the respective costs and revenues during Calendar Year 1997. (Total transactions are listed for each holder of one or more Presidential permits or export authorizations in Appendix B.) During 1997, the U.S. imported 47,828,054 MWh (megawatt hours; 1 MWh = 1000 kilowatt hours) of electric energy at a cost of $854,175,591. Of this total, 47,805,325 MWh (almost 100%) were imported from Canada and the remainder, 22,729 MWh (.05%), were received from Mexico. During this same period, U.S. exports of electric energy totaled 15,562,050 MWh with gross revenues of $117,217,090. Of this, 14,058,343 MWh (90%) representing $105,571,705 in revenue were delivered to Canada, and 1,503,707 MWh (10%) representing $11,645,385 in revenue were delivered to Mexico. On a net basis, the U.S. was an importer of 32,266,004 MWh of electric energy. These 1997 values constitute an increase of 2.8 percent in gross imports and a large increase of 72.5 percent in gross exports compared to 1997 levels. It should be noted that a significant number of exports to Canada were not "sales" but rather exchanges for which no money changed hands. The footnotes to Appendix B provide further details regarding the amounts of exchange imports and exports by company.

TRENDS IN INTERNATIONAL ELECTRICITY TRADE

Figure 1 shows the gross imports and exports between the U.S. and Canada and Mexico from 1970 through 1997. The levels of imports and exports remained comparatively small until the early 1970's when U.S. imports relative to exports began to rise sharply. This change closely correlates to the rise in imported oil prices and appears to represent a substitution of Canadian hydroelectric energy for more expensive oil-fired generation in the U.S. Throughout the 1980's U.S. gross imports continued to steadily rise, reaching 52,218,963 MWh in 1987, while U.S. exports remained at low levels.

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[1] Executive Order 12038 requires the issuance of a Presidential permit by DOE before an electric transmission line may be constructed across the U.S. international border. Exports of electric energy from the U.S. to a foreign country are also regulated and require authoriztion under section 202(e) of the Federal Power Act. (see Appendix A)

TABLE 1

SUMMARY OF INTERNATIONAL ELECTRICITY TRANSACTIONS FOR 1997

1/ REGION	IMPORTS FROM CANADA (MWH)	IMPORTS FROM CANADA COST($)	EXPORTS TO CANADA (MWH)	EXPORTS TO CANADA REVENUE($)	2/ NET CANADIAN TRANSACTIONS (MWH)	2/ NET CANADIAN TRANSACTIONS COST($)
NPCC - NEW ENGLAND	13,418,471	354,823,978	180,674	11,754,262	13,237,797	343,069,716
NPCC - NEW YORK	5,368,669	69,847,658	1,408,342	17,808,492	3,960,327	52,039,166
ECAR	3,097,274	66,694,974	1,712,100	40,684,786	1,385,174	26,010,188
MAPP	14,208,046	209,300,224	439,289	4,169,401	13,768,757	205,130,823
WSCC	11,712,865	153,160,976	10,317,938	31,154,764	1,394,927	122,006,212
SUBTOTAL CANADA	47,805,325	853,827,810	14,058,343	105,571,705	33,746,982	748,256,105

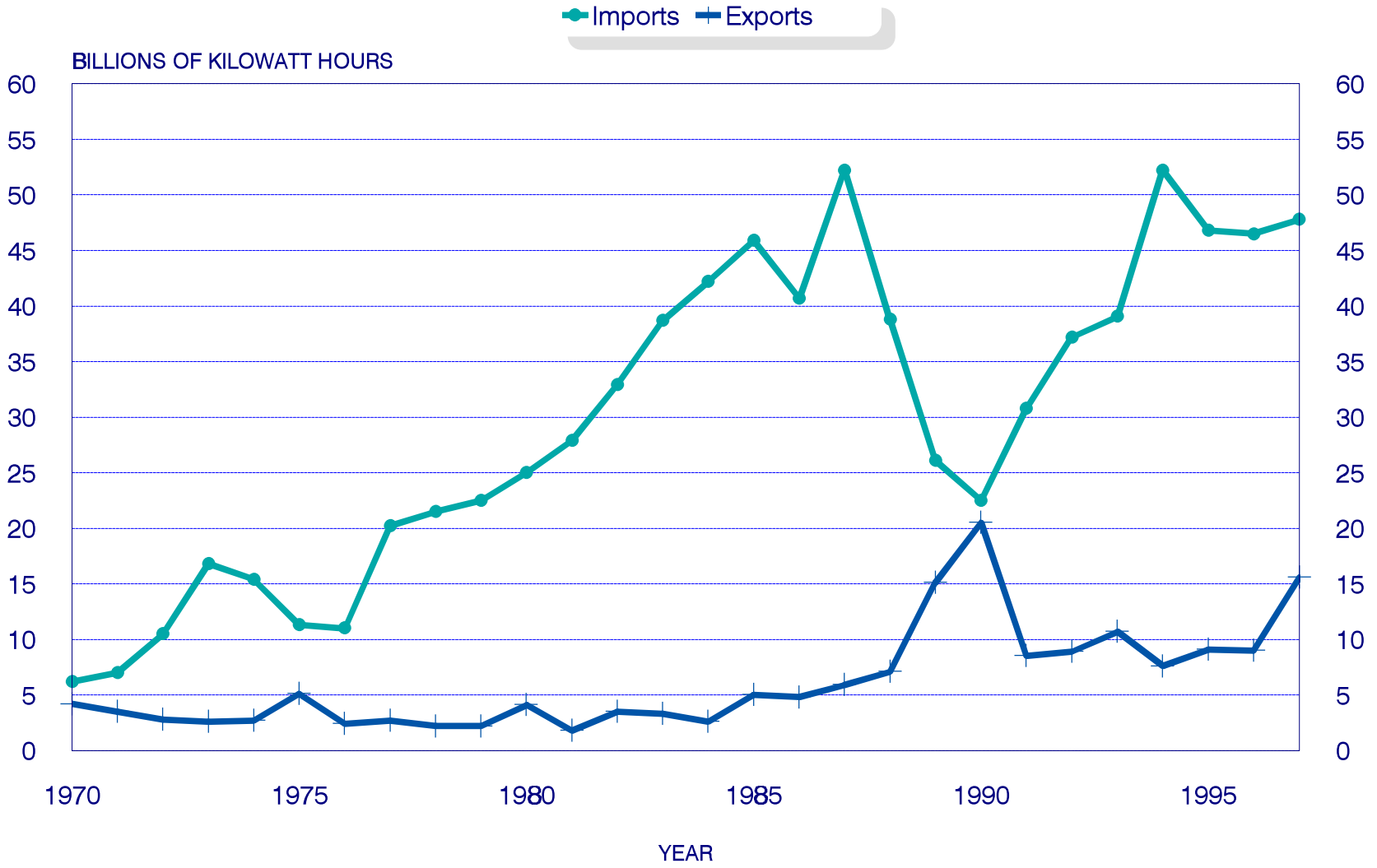
	IMPORTS FROM MEXICO (MWH)	IMPORTS FROM MEXICO COST($)	EXPORTS TO MEXICO (MWH)	EXPORTS TO MEXICO REVENUE($)	2/ NET MEXICAN TRANSACTIONS (MWH)	2/ NET MEXICAN TRANSACTIONS COST($)
ERCOT	6,236	182,823	2,811	220,804	3,425	(37,981)
WSCC	16,493	164,958	1,500,896	11,424,581	(1,484,403)	(11,259,623)
SUBTOTAL MEXICO	22,729	347,781	1,503,707	11,645,385	(1,480,978)	(11,297,604)
GRAND TOTAL U.S.	47,828,054	854,175,591	15,562,050	117,217,090	32,266,004	736,958,501

1/Regions are five of the nine reliability councils of the North American Electric Reliability Council that border either Canada or Mexico.

2/Positive values indicate that the U.S. utilities are net importers of electric energy and the dollar figures associated with these transactions are costs to o utilities. Negative values appear in parentheses and indicate that the U.S. region is a net exporter of electricity and the dollar figures associated with these transactions are paid to utilities.

FIGURE 1

ELECTRICITY TRANSACTIONS 1970-1997

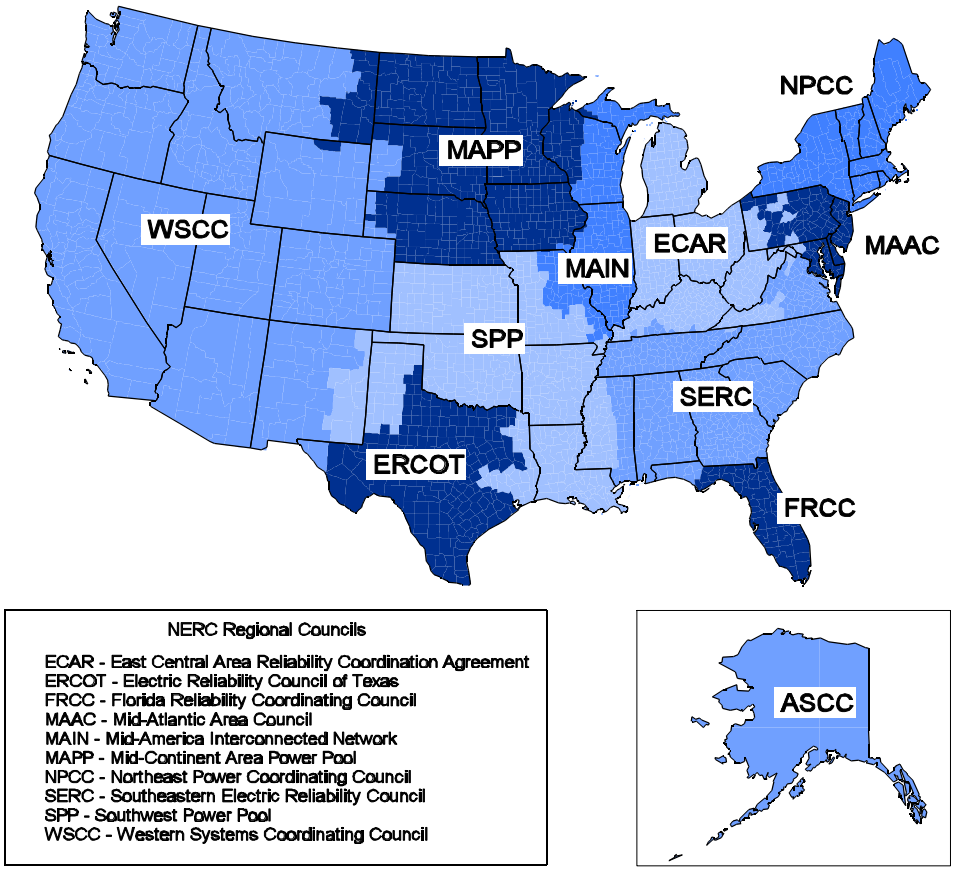


However, in 1987 U.S. exports began to rise sharply, and by 1990 reached 20,526,041 MWh. More than half of this increase resulted from sales to Ontario Hydro. During this time period, U.S. utilities were called upon to assist Ontario Hydro with electricity shortages caused by severe drought, higher than expected load growth, outages on several nuclear generating units, and derating of some Canadian coal-fired powerplants due to restrictions on air emissions. In 1997, U.S. imports increased by almost 3 percent from the previous year. Gross exports for the same period increased robustly by 72.5 percent and reached the second highest level ever recorded.

TRENDS IN REGIONAL ELECTRICITY TRANSACTIONS

This section describes the five-year trend of electricity transactions for each of the five North American Electric Reliability Council (NERC) regions that border and are interconnected with either Canada or Mexico. Also displayed are descriptions of each permitted or authorized transmission line that crosses an international border within each region. In addition, this report will present export quantities and facility locations for authorized non-traditional exporters and power marketers. Total transactions shown in Appendix B includes only those non-traditional exporters and power marketers that had exports in 1997 displayed within the region that they occurre d.

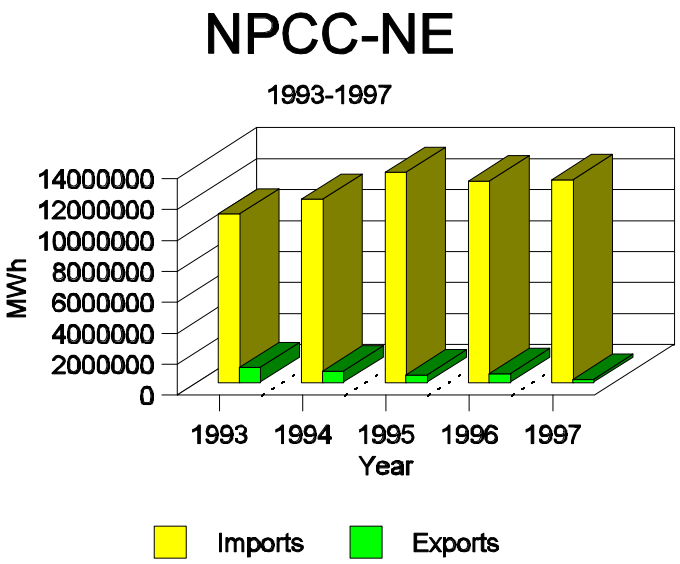
North Amreican Electric Reliability Council Regions for the Contiguous U.S., 1996



Note: The Alaska Systems Coordinating Council (ASCC) is an affiliate NERC member.
Source: Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels.

I. Northeast Power Coordinating Council (NPCC) - This region, divided into two parts, New England and New York, is the most heavily interconnected. It regularly accounts for almost 50 percent of total U.S. imports.

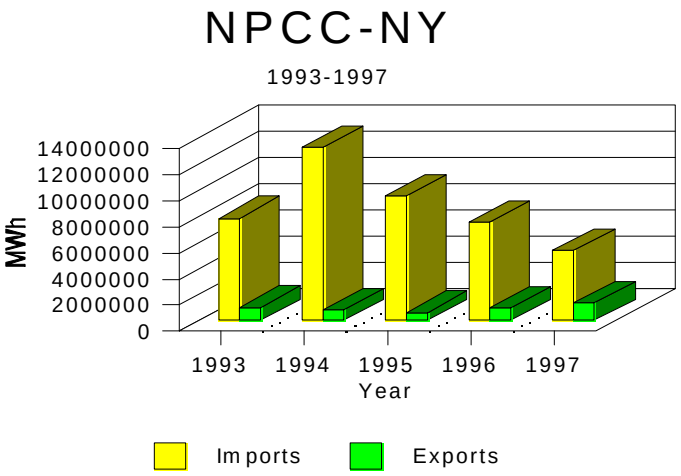
A. New England - From 1993-1995 electricity imports showed a steady annual increase, reaching 13,572,573 MWh in 1995 (the second highest one-year total for any region or sub-region over the last five years) before declining slightly in 1996, and then increasing in 1997 to 13,418,471 MWh , which is the second highest total recorded over the five year period. Exports for the sub-region peaked in 1992, exceeding 1 million MWh. Since then exports have steadily declined and only reached 180,674 MWh in 1997. On a net basis, this sub-region continues to be an overwhelming net importer averaging almost 12 million MWh of net imports over the five-year period, the highest for any region or sub-region.



HOLDERS OF PRESIDENTIAL PERMITS AND EXPORT AUTHORIZATIONS
NPCC-NE - CANADA

PERMITTEE	FE PERMIT NUMBER	EXPORT DOCKET NUMBER	ORIGINAL PERMIT SIGNED	DESCRIPTION OF LINES
Bangor Hydro-Electric Co.	PP-89		96-01-22	345 KV Baileyville, ME
Central Maine Power Company	PP-62		76-09-29	2-1/0 triplex cables 120-240 V Coburn Gore,ME
Citizens Utilities Company	PP-66	EA-66-B	79-06-21	120 KV Derby Line, Vermont
Citizens Utilities Company	PP-80	EA-80	83-08-05	25 KV Cannan, Vermont
				25 KV Norton, Vermont
Eastern Maine Electric Coop, Inc.	PP-20		53-05-27	6.9 KV Forest City, Maine
Eastern Maine Electric Coop, Inc.	PP-32	E-6853	59-02-05	69 KV Calais, Maine
Fairfield Energy Venture & Maine PS Co	PP-83EA			Trans. over facilities in PP-12 and PP-29
Fraser Paper Limited	PP-11-1	IT-5952	45-11-20	69 KV Madawaska, Maine
Joint Owners of the Highgate Project	PP-82-2		85-04-14	345 KV operating at 120 KV-Franklin, VT
Maine Electric Power Company	PP-43	E-7534	69-07-25	345 KV Houlton, Maine
Maine Public Service Company	PP-12	E-6751	48-01-03	69 KV Limestone, Maine
				69 KV Fort Fairfield, Maine
Maine Public Service Company	PP-29-2	E-6751	57-09-18	138 KV BM #62, Aroostock County, ME
				2 @ 69 KV Madawaska, Maine
Maine Public Service Company	PP-81		84-09-21	7.2 KV River-de-Chute, Maine
New England Power Pool		EA-76-C		Authorized to use PP-76
Vermont Electric Cooperative	PP-69		80-10-09	5 @ 4 KV Derby Line, Vermont
				48 KV Derby Line, Vermont
Vermont Electric Transmission Co.	PP-76-1		84-04-05	450 KV DC Norton, Vermont
				345 KV Sandy Pond to Milbury #3
				345 KV Milbury #3 to West Medway

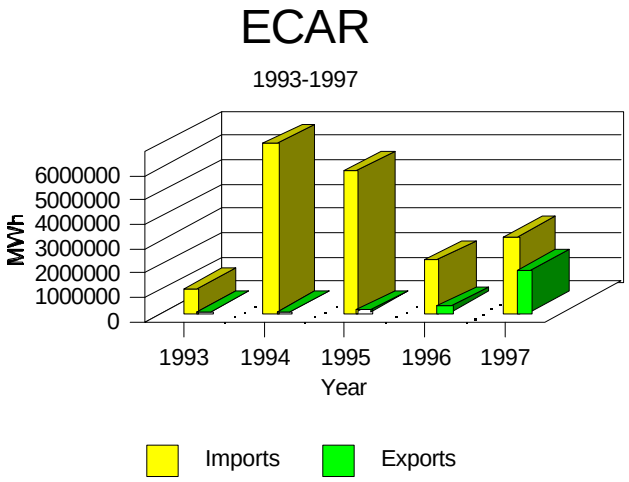
B. New York - Electricity imports rose steadily, reaching 13,249,551 MWh in 1994 before beginning a steady decline and reaching 5,368,339 MWh in 1997. Electricity exports in this sub-region slowly declined from 2,198,143 MWh in 1990, until rebounding in 1996, and, in 1997 reached 1,408,342 MWh. In eight of the last nine years (with the exception of 1994), this sub-region contributed less than 50 percent of total NPCC imports. But for the eleventh year in a row NPCC-NY accounted for more than 50 percent of the entire regions exports. On a net bases, the NPCC-NY sub-region averaged less than half the net exports over the last five years than it experienced throughout most of the 1980's.



HOLDERS OF PRESIDENTIAL PERMITS AND EXPORT AUTHORIZATIONS
NPCC-NY - CANADA

PERMITTEE	FE PERMIT NUMBER	EXPORT DOCKET NUMBER	ORIGINAL PERMIT SIGNED	DESCRIPTION OF LINES
Long Sault Incorporated	PP-24-B		55-06-26	2 @ 115 KV Massena, New York
New York Power Authority	PP-25		55-09-26	2 @ 230 KV Massena, New York
New York Power Authority	PP-30		58-02-28	230 KV Devil's Hole, New York
New York Power Authority	PP-56		74-09-13	765 KV Fort Covington, New York
New York Power Authority	PP-74		81-09-04	2 @ 345 KV Niagara Falls, New York
Niagara Mohawk Power Corp.	PP-13	IT-6078	48-01-31	4.8 KV Hogansburg, New York
Niagara Mohawk Power Corp		EA-24	56-01-24	Authorized to use PP-24
Niagara Mohawk Power Corp.	PP-31	E-6797	58-02-28	230 KV (3 phase) Devil's Hole, New York 2 @ 38 KV Buffalo, New York 2 @ 69 KV Queenstown, New York 4 @ 12 KV 3/c cables - Rainbow Br. New York 12 KV 1/c cable - Rainbow Br. (never built) 2 @ 69 KV Devil's Hole, New York
Presley, E.T.	PP-54		73-03-16	4.8 KV (1 phase) Wellesley Island, NY

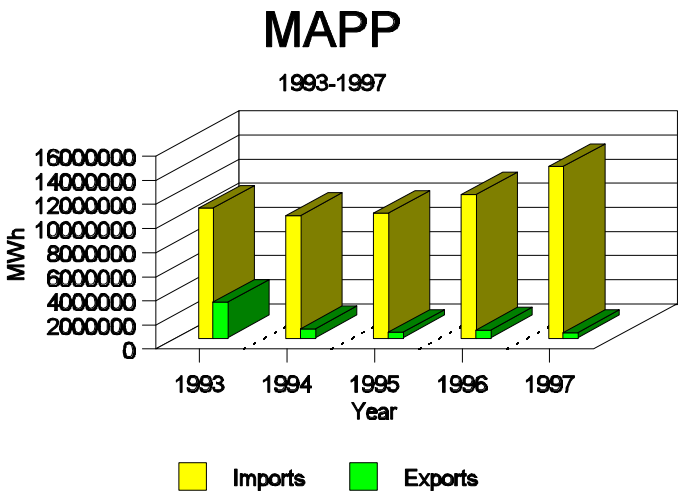
II. East Central Area Reliability Coordination Agreement (ECAR) - Imports for this lightly interconnected region were at record levels in 1994 and 1995, reaching 6,909,582 MWh and 5,798,944 MWh respectively. After a decline, imports, in 1997, rose to 3,097,274 MWh which is the third highest level of imports ever recorded. Exports over the five-year period returned to historic low levels after the unusual 1989 and 1990 periods when exports reached almost 11 million MWh in 1990. However, in 1997 exports rose to 1,712,100 MWh. From 1989-1992 ECAR was a net exporter. But, throughout the five-year period, 1993-1997, the region was an overwhelming net importer.



HOLDERS OF PRESIDENTIAL PERMITS AND EXPORT AUTHORIZATIONS
ECAR

PERMITTEE	FE PERMIT NUMBER	EXPORT DOCKET NUMBER	ORIGINAL PERMIT SIGNED	DESCRIPTION OF LINES
Detroit Edison Company	PP-38	E-7206	66-03-01	345 KV St. Clair, Michigan
Detroit Edison Company	PP-21-1	E-7206	53-10-12	230 KV Marysville, Michigan 230 KV Detroit, Michigan
Detroit Edison Company	PP-58	EA-58-E	75-07-25	345 KV St. Clair, Michigan
St. Clair Tunnel Company	PP-99	EA-99	94-12-21	4.8 KV St, Clair, Michigan

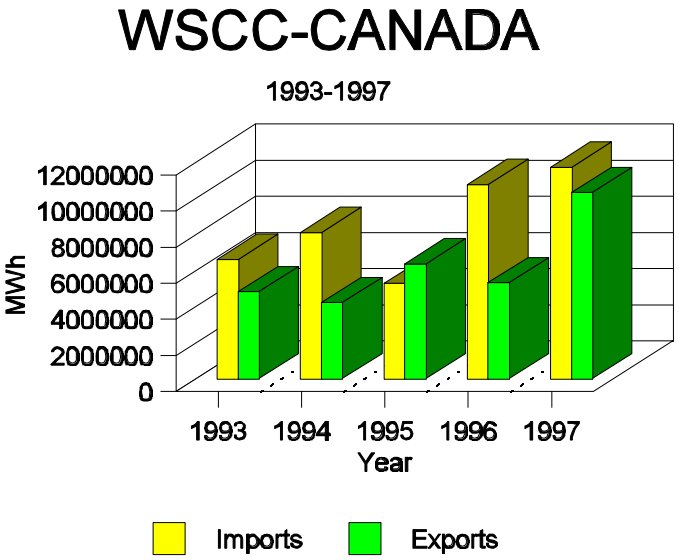
III. Mid-Continent Area Power Pool (MAPP) - From 1993-1997 electricity imports into the MAPP region exceeded 10 million MWh for each year. In fact, in 1997 imports reached 14,208,046 MWh, the highest level ever recorded for the region. This import level is only exceeded, in 1997, by the NPCC region (NEW ENGLAND and NEW YORK). In 1993 exports rose to 2,958,591 MWh, which was the second highest export level reached since 1988. By 1997 exports were down to 439,289 MWh. From 1993-1997 the MAPP region was an overwhelming net importer, reaching an all-time high net import level in 1997 of 13.8 million MWh.



HOLDERS OF PRESIDENTIAL PERMITS AND EXPORT AUTHORIZATIONS
MAPP

PERMITTEE	FE PERMIT NUMBER	EXPORT DOCKET NUMBER	ORIGINAL PERMIT SIGNED	DESCRIPTION OF LINES
Basin Electric Power Coop	PP-64	IE-78-5	79-11-30	230 KV Tioga, North Dakota
Boise Cascade Corp	PP-39	PP-39EA	66-11-07	6.6 KV International Falls, Minnesota
	PP-96-1		96-05-31	115 KV International Falls, Minnesota
Minnesota Power & Light Company	PP-78	PP-78-A	82-09-30	115 KV International Falls, Minnesota
Minnkota Power Cooperative, Inc.	PP-61-1	E-9534	76-07-06	230 KV Roseau County, Minnesota
Minnkota Power Cooperative, Inc.	PP-70		80-10-10	12 KV Lake of the Woods County, Minnesota
North Central Electric Coop, Inc.	PP-67		79-06-27	12.5 KV u/g Dunseith, North Dakota
Northern Electric Cooperative Assoc.	PP-28	E-6670	56-12-12	3 @ 7.2 KV Valley County, Montana
Northern Electric Cooperative Assoc.	PP-44	E-7465	69-07-02	12.4 KV St. Louis County, Minnesota
Northern Electric Cooperative Assoc.	PP-60	E-9554	76-07-12	2 @ 14.4 KV St. Louis County, Minnesota
Northern States Power Company	PP-45-1	E-7482	69-09-19	230 KV Red River, North Dakota
Northern States Power Company	PP-63-4	EA-63-B	79-03-06	500 KV Roseau County, Minnesota
Roseau Electric Cooperative, Inc.	PP-42	E-8361	68-11-25	7.2 KV (1 phase) Roseau County, MN
Roseau Electric Cooperative, Inc.	PP-55	E-8361	74-05-09	25 KV (1 phase) Roseau County, MN

IV. Western Systems Coordinating Council (WSCC) - The WSCC is the largest geographic area of all the NERC regions. It is the only region that is both interconnected with Canada, on it's northern border, and with Mexico, on it's southern border. Canada is interconnected to the WSCC via the Northwest Power Pool and Mexico is interconnected to both the California-Southern Nevada Power Area and the Arizona-New Mexico Power Area.

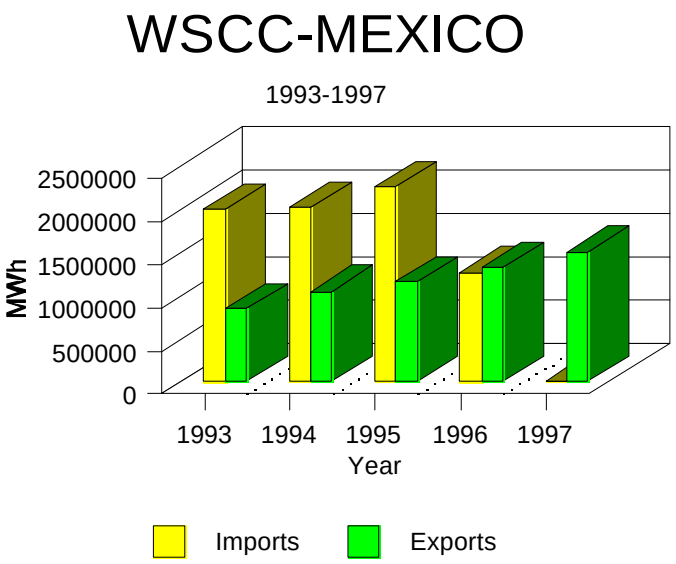


A. Canada - In 1992 this sub-region had its third highest level of imports ever recorded. From 1993-1995 imports returned to their historic amounts and then in 1996 doubled, reaching 10,768,584 MWh. In 1997, imports again rose approaching 1992 levels, reaching 11,712,865 MWh. Exports, in 1997, reached their highest level ever recorded, 10,317,938 MWh. In fact, this is the second highest export level ever recorded for any region or sub-region, exceeded only by ECAR's emergency situation in 1990. For the first time, in 1995, the WSCC-CANADA sub-region was a net exporter of electric energy. In 1997, imports out paced exports by 1.7 million MWh.

HOLDERS OF PRESIDENTIAL PERMITS AND EXPORT AUTHORIZATIONS
WSCC - CANADA

PERMITTEE	FE PERMIT NUMBER	EXPORT DOCKET NUMBER	ORIGINAL PERMIT SIGNED	DESCRIPTION OF LINES
Bonneville Power Administration	PP-10		45-10-27	2 @ 500 KV Blaine, Washington
Bonneville Power Administration	PP-36		64-09-03	230 KV Nelway, British Columbia
Bonneville Power Administration	PP-46		70-08-29	230 KV Nelway, British Columbia
Glacier Electric Cooperative, Inc.	PP-18	EA-18-B	52-07-12	120/240 V Carway, Alberta 20/240 V Del Bonita, Alberta
Marias River Electric Coop, Inc.	PP-41	IT-6097	68-07-28	6.9 KV Sweet Grass, Montana
PUD #1 of Pend Oreille County, WA	PP-34		59-11-05	7.2 KV (1 phase) Pend Orielle County, WA
Puget Sound Power & Light Co.	PP-06-1		81-04-28	25 KV Pt. Roberts, Washington
Washington Water Power	PP-86	EA-101-A	93-03-08	230 KV Northport, WA (Not yet constructed)

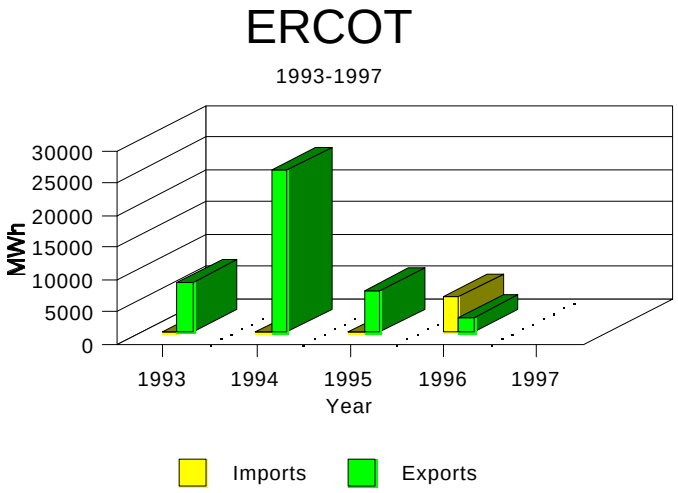
B. Mexico - From 1987-1995 imports remained at slightly above or below the 2 million MWh level before declining, in 1996, to 1,257,586 MWh. In 1997, imports virtually disappeared, reaching only 16,493 MWh, the lowest level since 1982. Exports during the five-year period rose steadily, reaching an all-time high of 1,500,896 MWh in 1997. Also, in 1997, as in 1996, the WSCC-MEXICO sub-region was a net exporter of electric energy. This hadn't happened since 1982. The overwhelming majority of electricity transactions between the U.S. and Mexico occur within this sub-region.



HOLDERS OF PRESIDENTIAL PERMITS AND EXPORT AUTHORIZATIONS
WSCC - MEXICO

PERMITTEE	FE PERMIT NUMBER	EXPORT DOCKET NUMBER	ORIGINAL PERMIT SIGNED	DESCRIPTION OF LINES
Arizona Public Service		EA-104		Authorized use of PP-68 & PP-79
Arizona Public Service	PP-106	EA-106	95-11-07	34.5 KV San Louis, AZ (Industrial)
Arizona Public Service	PP-107	EA-107	95-11-28	34.5 KV Douglas, AZ
Arizona Public Service	PP-108	EA-108	95-12-05	34.5 KV San Louis, AZ (Canal)
Citizens Utilities Company	PP-16	E-6431	52-08-08	13 KV Nogales, Arizona 2.3 KV Nogales, Arizona
Citizens Utilities Company	PP-40	E-7370	67-12-29	13.8 KV Lochiel, Arizona
El Paso Electric Company	PP-48-3	EA-48-M	70-09-30	115 KV El Paso, Texas (Ascarate)
El Paso Electric Company	PP-92		92-04-16	115 KV Diablo Substa., Sunland Park, NM
Imperial Irrigation District	PP-90		90-11-29	34.5 KV in Calexico, California
San Diego Gas & Electric Company	PP-49-1	E-7544	70-12-29	69 KV Tijuana, Mexico 12 KV Tijuana, Mexico 12 KV Tecate, Mexico
San Diego Gas & Electric Company	PP-68	PP-68EA	81-01-12	230 KV San Diego Co, CA (Miguel-Tijuana)
San Diego Gas & Electric Company	PP-79	PP-79EA	83-12-20	2 @ 230 KV Imperial Valley, CA
Southern California Edison Company		PP-79-SC	56-04-06	Authorized to use PP-68 and PP-79

V. Electric Reliability Council of Texas (ERCOT) - This region has a relatively large number of small lines interconnected with Mexico (no line exceeds 138KV). Thus historically, ERCOT, has had very low levels of both imports and exports. From 1986-1995, this was certainly true for imports. However, in 1996 imports rose and in 1997 reached 6,236 MWh, the highest import level since 1984. In 1991 and 1992 exports reached levels that were 3-4 times higher than ever recorded, before returning, in 1993, to more historic amounts of MWh. In 1997, exports were only 2,811 MWh, the second lowest amount ever recorded for any region or sub-region. ERCOT is the only region that has been a consistent net exporter. In 1996 and again in 1997, however, imports were greater than exports for the first time since 1984.



HOLDERS OF PRESIDENTIAL PERMITS AND EXPORT AUTHORIZATIONS
ERCOT

PERMITTEE	FE PERMIT NUMBER	EXPORT DOCKET NUMBER	ORIGINAL PERMIT SIGNED	DESCRIPTION OF LINES
Central Power & Light Company	PP-94	EA-94A	92-06-18	69 KV Brownsville, Texas 138 KV Brownsville, Texas
Comision Federal de Electricidad	PP-03	E-6137	41-08-26	12.5 KV (3 phase) Presidio, Texas
Comision Federal de Electricidad	PP-51	E-7651	71-10-15	7.2 KV (1 phase) Redford, Texas
Comision Federal de Electricidad	PP-59	E-7972	76-04-16	12 KV Amistad Dam NW of Del Rio,Texas
Comision Federal de Electricidad	PP-75		82-08-13	7.2 KV Comstoc,Texas
Comision Federal de Electricidad	PP-50		49-04-29	138 KV Eagle Pass, Texas
Comision Federal de Electricidad	PP-57	IT-5025	75-01-24	138 KV Laredo, Texas
Rio Grande Electric Cooperative, Inc.	PP-33	E-6868	59-07-28	14.4/24.9 KV Heath Crossing, Texas
Rio Grande Electric Cooperative, Inc.	PP-53	E-7688	73-01-16	14.4 KV Lajitas, Texas 14.4 KV Castolon, Texas 14.4 KV Candelaria, Texas
Rio Grande Electric Cooperative, Inc.	PP-75-EA		82-08-13	Authorized to use PP-75
West Texas Utilities Company		EA-3-G	79-03-19	Authorized to use PP-3

TABLE 2

REGIONAL ELECTRICITY IMPORTS

Council/Region	1997 Electric Energy Requirements MWH	1997 Net Electric Imports MWH	1997 Net Imports as % of Requirements
ECAR (Lower Michigan)	537,623,000	3,097,274	0.58%
MAPP	149,368,000	14,208,046	9.51%
NPCC (New England)	115,921,000	13,418,471	11.58%
NPCC (New York)	148,100,000	5,368,669	3.63%
WSCC (CA - S.NV; NWPP; AZ - NM) 2/	576,525,000	11,729,358	2.03%
ERCOT	243,981,000	6,236	0.00%
TOTAL U.S. 3/	3,388,440,000	47,828,054 4/	1.41%

1/ Source is the voluntary Coordinated Bulk Power Supply Program for each of the NERC regions reported to DOE on Form EIA-411.

2/ WSCC is made up of four subregions. Most of the electric energy imported from Canada was wheeled through the Bonneville Power Administration's system and delivered to utilities in the Pacific Northwest and California.

3/ Total U.S. includes all of the ten reliability Councils of NERC. The remaining subregions of Councils listed above and the remaining five reliability Councils not listed (FRCC, MAAC, MAIN, SERC, and SWPP, plus the associated region ASCC) had no electricity imports from either Canada or Mexico.

4/ This value represents the total electric energy requirements for only those utilities which are members of NERC. However, these utilities represent in excess of 95 percent of the total electric energy requirements for the U.S. in 1997.

REGIONAL IMPACT OF ELECTRICITY IMPORTS

While net imports represented only 1.41 percent of the total U.S. electric energy requirements for 1997, the impact becomes greater when viewed from the regional perspective (See Table 2). For example, electricity imports provided 11.6 percent of New England's electric energy requirements for 1997. The next largest importers of electric energy (on a percentage basis) were the Mid-Continent Area Power Pool (MAPP) and the New York subregion of the Northeast Power Coordinating Council (NPCC) with 9.5 percent and 3.6 percent of their respective electric energy requirements being provided by electricity imports from Canada.

NON-TRADITIONAL EXPORTERS AND POWER MARKETERS

Historically, the primary exporter of electric energy has been the “traditional” transmitting electric utility that also owned and operated the transmission facilities that interconnect with similar facilities in Mexico and Canada. A majority of the transmission agreements between the U.S. utility and its foreign counterpart were for long-term sales or emergency back-up. An increasing number of electricity export authorization applications are now being submitted by power marketers, traditional electric utility companies not contiguous with the border, and traditional utilities that seek to export under short term contracts or terms similar to power marketers. In FE Docket EA-100 (April 19, 1994), DOE authorized San Diego Gas & Electric Company to export non-firm electric energy to BC Hydro in the Canadian Province of British Columbia using the transmission facilities of the Bonneville Power Administration (BPA). In another docket (EA-98, subsequently amended 4 times), DOE authorized certain members (currently 30) of the Federal Energy Regulatory Commission (FERC) approved Western System Power Pool (WSPP) to transmit electric energy to BC Hydro, also through the facilities of BPA. As the electricity marketplace began to restructure under FERC’s vision of open access and comparable transmission service, the sellers of electric energy were no longer required to own generation, transmission, or a system. The seller of electric energy in the foreign marketplace no longer needed the border utility to facilitate international sales, but rather transmit the electricity, at a fee or tariff, for the seller. The first application by a power marketer was submitted by Enron Power Marketing, Inc. in October, 1994 (FE Docket EA-102). The DOE did not issue an order in that docket until February 2, 1996. Appendix A of this document contains additional information regarding power marketers.

In the first few years non-traditional exporters and power marketers had little affect on international trade. The quarterly reports required of these exporters have now begun to show a growing number of transactions or large volumes of energy trade. In 1997, exports by non-traditional exporters and power marketers accounted for 8.9 percent of total United States exports. A parallel can be drawn with the first years of the deregulated natural gas market 12 years ago. At the outset of natural gas deregulation, the number of applications to import or export natural gas increased dramatically, while the actual volume of gas traded as a result of these authorizations remained relatively modest. Today over half of the natural gas transactions are by natural gas marketers purchasing and selling under short-term, spot market contracts.

INTERNATIONAL ELECTRICITY TRANSACTIONS
ORDERS ISSUED DURING CALENDAR YEAR 1997

The following are all actions completed on Presidential permits and electricity export authorizations during calendar year 1997.

ELECTRIC ENERGY TRANSMITTED TO CANADA

DOCKET	APLPLICANT	ACTION	DATE ISSUED
EA-148	Aquila Power Corporation	Export	08/13/97
EA-144	CNG Energy Services Corp.	Export	08/13/97
EA-117	Calpine Power Services	Export	04/04/97
EA-153	Citizens Power Sales	Export	10/01/97
EA-58-F	Detroit Edison; Consumers	Export	12/31/97
EA-142	Eastern Power Distribution	Export	04/30/97
EA-120	Edison Source	Export	04/04/97
EA-122	Electric Clearinghouse	Export	08/08/97
EA-136	Engage Energy US	Export	04/04/97
EA-126	Federal Energy	Export	08/13/97
EA-139	Global Energy Services	Export	04/04/97
EA-118	Hill County Electric Coop.	Export	02/06/97
EA-141	Inland Pacific Energy Svs.	Export	05/05/97
EA-156	Inland Pacific Resources	Export	12/12/97
EA-137	New York State E & G	Export	04/04/97
EA-150	PacifiCorp.	Export	08/13/97
EA-123	PECO Energy Company	Export	08/08/97
EA-154	Plum Street Energy Marketing	Export	10/01/97
EA-131	Sonat Power Marketing	Export	07/31/97
EA-152	Tractebel Energy Marketing	Export	08/13/97
EA-146	Utility Trade Corp., The	Export	08/13/97
EA-98-D	Western Sys. Power Pool	Export	03/24/97
EA-98-E	Western Sys. Power Pool	Export	05/05/97

ELECTRIC ENERGY TRANSMITTED TO MEXICO

DOCKET	APPLICANT	ACTION	DATE ISSUED
EA-147	Arizona Public Service	Export	06/19/97
EA-134	Arizona Public Service	Export	02/14/97
EA-145	British Columbia Power Ex.	Export	05/30/97
EA-143	CNG Energy Services	Export	06/05/97
EA-119	Edison Source	Export	03/13/97
EA-121	Electric Clearinghouse	Export	02/24/97
EA-48-L	El Paso Electric	Export	06/13/97
EA-48-M	El Paso Electric	Export	06/26/97
EA-135	Engage Energy US, L.P.	Export	03/21/97
EA-125	Federal Energy Sales	Export	04/04/97
EA-138	Global Energy Services	Export	03/13/97
EA-149	PacifiCorp	Export	07/14/97
EA-140	Pub. Svs. of New Mexico	Export	03/03/97
EA-128	Quixx Corporation	Export	04/03/97
EA-130	Sonat Power Marketing	Export	04/04/97
EA-127	Southwestern Pub. Svs.	Export	04/04/97
EA-151	Tractebel Energy Marketing	Export	07/14/97

NEW PRESIDENTIAL PERMITS ISSUED

DOCKET	APPLICANT	BORDER	DATE ISSUED
PP-118	Hill County Electric Coop.	Montana/Canada	02/06/97

During preparation of this report for calendar year 1997, DOE continued to process new electricity export authorization and Presidential permit applications. The following list contains those export authorizations completed prior to September, 1998.

EXPORT AUTHORIZATIONS TO CANADA

DOCKET	APPLICANT	DATE ISSUED
EA-97-B	Portland General Electric	03/05/98
EA-100-B	San Diego Gas & Electric	04/29/98
EA-105-A-CN	NorAm Energy Services	08/21/98
EA-155	ProMark Energy, Inc.	01/23/98
EA-157	Consolidated Edison Co. of NY	01/23/98
EA-158	Williams Energy Services	01/23/98
EA-159	Cincinnati Gas & Electric	01/23/98

EA-160	Rochester Gas & Electric	01/23/98
EA-161	PSI Energy, Inc.	01/22/98
EA-162	PP&L, Inc.Marketing	01/28/98
EA-164	Constellatio	01/23/98
EA-163	Duke Energy Trading & Power Source	01/23/98
EA-165	NP Energy, Inc.	01/22/98
EA-168	PG&E Energy Trading	02/25/98
EA-168-A	PG&E Energy Trading	08/25/98
EA-169	Commonwealth Edison Company	02/19/98
EA-170	Energetix, Inc.	02/25/98
EA-171	British Columbia Power Exchange	02/25/98
EA-172	The Power Company of America	03/09/98
EA-173	New England Power Pool	01/23/98
EA-177	Burke-Divide Electric Coop.	07/17/98
EA-180	Virginia Electric and Power	07/16/98
EA-182	H.Q. Energy Services	08/21/98
EA-183	NGE Generation, Inc.	08/19/98
EA-185	Morgan Stanley Capital Group	08/21/98
EA-186	New England Power Pool	08/26/98
EA-187	Merchant Energy Group of America	08/21/98

EXPORT AUTHORIZATIONS TO MEXICO

DOCKET	APPLICANT	DATE ISSUED
EA-48-N	El Paso Electric	02/25/98
EA-102-B	Enron Power Marketing	02/06/98
EA-105-A-MX	NorAm Energy Services	05/21/98
EA-166	Duke Energy Trading & Mktg.	03/09/98
EA-167	PG&E Energy Trading	02/25/98
EA-175	Enova Energy, Inc.	03/25/98
EA-176	Sempra Energy Trading	03/25/98
EA-178	Citizens Power Sales	05/29/98
EA-179	California Power Exchange Corp.	05/29/98
EA-181	H.Q. Energy Services	07/16/98
EA-184	Morgan Stanley Capital Group	07/23/98

PRESIDENTIAL PERMITS ISSUED

DOCKET	APPLICANT	BORDER	DATE ISSUED
PP-177	Burke-Divide Electric Coop.	/Canada	07/17/98

INTERNET ACCESS

The Office of Coal & Power's Regulatory Internet Home page is available on the World Wide Web:

http://www.fe.doe.gov/coal_power/elec_reg/elec_reg.htm

The site includes program history, information on procedures for obtaining documents for filing Presidential permit or export authorization applications, annual reports on international transactions, and current "News Briefs".

APPENDIX A

THE FEDERAL ELECTRICITY IMPORT/EXPORT PROGRAM

BACKGROUND

The Federal international electricity program consists of two elements: (1) granting Presidential permits for the construction and operation of electric transmission lines which cross the U.S. international border; and (2) authorizing exports of electric energy to foreign countries. The authority to grant Presidential permits is derived from the constitutional power of the President to protect the territorial integrity of the United States. The authority to regulate the export of electric energy is based on the statutory authority contained in section 202(e) of the Federal Power Act (FPA).

Executive Order 8202, issued by President Roosevelt in 1939, prohibited anyone from constructing or operating electric transmission facilities at the U.S. international border without first receiving a permit from the President. All permits were signed by the President until 1953, when Executive Order 10485 transferred permitting authority to the Chairman of the Federal Power Commission (now the Federal Energy Regulatory Commission (FERC)), where it remained until 1977. In 1977 Executive Order 12038 transferred the authority to the Secretary of Energy who delegated it, first, to the Administrator of the Economic Regulatory Administration, and then, to the Assistant Secretary for Fossil Energy, who further delegated the authority to the Deputy Assistant Secretary for Fuels Programs.

On October 21, 1980, the Department of Energy issued the current regulations implementing its authority under E.O. 12038 and section 202(e) of the FPA. These appear in the October 28, 1980 issue of the Federal Register (45 FR 71558) and in the Code of Federal Regulations at 10 CFR Part 205. Additional regulations that shift the cost of paying for environmental documentation from the government to the applicant appeared in the July 25, 1983 issue of the Federal Register (48 FR 33816).

GENERAL REQUIREMENTS FOR A PRESIDENTIAL PERMIT

Executive Order 12038 states that, before a Presidential permit may be issued, the action must be found to be consistent with the public interest. The two criteria used by DOE to determine if a proposed project is consistent with the public interest are:

1. Environmental Impact - The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies give due consideration to the environmental consequences of their actions. Pursuant to NEPA, DOE must determine the environmental impacts associated with issuing or denying a Presidential permit. DOE published NEPA implementing procedures on April 24, 1992 (57 FR 15122). These rules, codified at 10 CFR 1021, specifically delineate the steps of the NEPA process.

2. Impact on Electric Reliability - DOE considers the effect that the proposed project would have on the operating reliability of the U.S. electric power supply system; i.e., the ability of the existing generation and transmission system to remain within acceptable voltage, loading and stability limits during normal and emergency conditions. The standards DOE applies include the standards of the North American Electric Reliability Council (NERC) and the standards of the member regional councils that are formulated by the utilities themselves.

After compliance with NEPA and satisfaction of the electric reliability criteria, E.O. 12038 requires DOE to obtain concurrence from the Secretary of State and the Secretary of Defense before a permit may be issued.

The time required to process an application for a Presidential permit is usually determined by the extent of the environmental analysis. A decision on a permit may be reached within six months if it is determined that the issuance of a permit is not a major federal action significantly affecting the environment and that an environmental assessment is the appropriate level of review for NEPA compliance. However, if it is determined that an Environmental Impact Statement would be required to adequately address the full environmental consequences of the proposed action, the time for processing the permit application could take 18 months or longer. A filing fee of $150, must be submitted with the application (original and 14 copies). In addition to this filing fee, an applicant also must pay the cost of DOE's environmental review if an environmental assessment or environmental impact statement is required. In some cases, NEPA can be satisfied using one of the categorical exclusions available at 10 CR 1021.410. Categorical exclusions describe classes of actions that normally do not require the preparation of either an environmental impact statement or an environmental assessment because similar actions in the past clearly did not result in any significant environmental impact.

GENERAL REQUIREMENTS FOR AN EXPORT AUTHORIZATION

Part 11, Section 202(e) of the FPA states that exports of electric energy should be allowed unless the proposed export would impair the sufficiency of electric power supply within the U.S. or would impede or tend to impede the coordinated use of the U.S. power supply network. Based on these guidelines, DOE will grant authorization to export electric energy if it is determined that:

1. Sufficient generating resources exist such that the exporter could sustain the export while still maintaining adequate generating resources to meet all firm supply obligations; and,

2. The export would not cause operating parameters on regional transmission systems to fall outside of established industry criteria.

DOE must also comply with NEPA before granting authorization to export electric energy. However, in many instances DOE is able to cite a categorical exclusion (10 CFR 1021.410) for exports over existing international transmission lines.

A decision on an export authorization is usually reached within three months of receipt of the application. A filing fee of $500, must be submitted with the application (original document with 14 copies).

POWER MARKETING FIRMS APPLYING FOR EXPORT AUTHORITY

During 1996 there was one significant change to the program: the addition of power marketers as authorized exporters. In authorizing electricity exports by power marketers, DOE broadened the considerations and analysis used in complying with the statutory criteria in the Federal Power Act related to electric reliability. When the universe of authorized electricity exporters consisted almost exclusively of Federal Energy Regulatory Commission (FERC) regulated electric utilities, the DOE supported its reliability analyses by using the load and capacity information and the system "simulation" studies provided by the export applicant. These analyses assumed that the exported energy would be supplied from "system power," including all installed capacity and purchased power. In fact, the total supply resources of many utilities usually includes power purchased from other systems or regions. The analysis for these "traditional" applicants consisted of comparing total supply resources to total load obligations (both native load and off-system sales). This is generally referred to as capacity reserve margin. Additionally, DOE considered whether the transmission of the export from the applicant's system to the border would cause any operating problems on the regional power supply system(s). However, the power marketers do not have systems, loads, generators or transmission facilities. Consequently, when attempting to assess the reliability implications of an export by a power marketer, DOE did not have the same starting point for conducting the analyses that normally were performed to satisfy the statutory criteria in section 202(e) of the Federal Power Act.

The power marketers put together power portfolios by purchasing various power products from a host of electricity suppliers. They then make a variety of arrangements to have this purchased power delivered over various transmission paths to numerous border points. However, what the power marketers do have in common with the traditional exporters is an identifiable delivery point: the transmission systems contiguous with the border. Once a power marketer's exported power arrives at one of these "border" systems, it creates the same reliability impacts as "system power" exported from the border system.

DOE's export authorization in itself does not impose a requirement on border utilities to provide transmission service. Rather, DOE expects those systems owning cross-border transmission facilities to provide access to them in accordance with the principles of comparable open access and non-discrimination contained in the Federal Power Act (FPA) and articulated in FERC's Order Nos. 888 and 888-A (Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities). The actual rates, terms and conditions of transmission service are expected to be consistent with the non-discrimination principles of the FPA and the transmitting utility's Open Access Transmission Tariff on file with the FERC.

Since issuing the first power marketer export authorization to Enron Power Marketing on February 6, 1996, there has been an attempt to some extent to thwart trade by these new competitors. The DOE has pointed out in its ordering language that all recipients of export authorizations, including owners of border facilities for which Presidential permits have been issued, are required by their export authorization to conduct operations in accordance with the principles of the FPA and pertinent rules, regulations and orders, which include the comparable open access provisions of FERC Order No. 888. FERC also has concluded that the cross-border electric trade ought to be subject to the same principles of comparable open-access and non-discrimination that apply to transmission in interstate commerce. (Order On Complaint issued October 4, 1996 (Docket EL96-74-000)). In the Order on Complaint, FERC concluded that DOE, not FERC, has the authority, under the FPA and by the Executive Order authorizing Presidential permits in the public interest, to require such service over the domestic portion of the international lines up to and crossing the border.

On October 29, 1996, the Secretary of Energy signed Delegation Order No. 0204-163, which delegated and assigned to the FERC authority to carry out such functions vested in the Secretary to regulate access to, and the rates, terms and conditions for, transmission services over the international facilities of the El Paso Electric Company (EPE). The authority was delegated to FERC for the sole purpose of carrying out the Department's open access policy and, thus, authorized FERC to take any further actions that may be necessary to effectuate open access transmission over the United States portion of EPE's electric transmission lines. The Delegation Order was published in the Federal Register on November 1, 1996, at 61 FR 56525. This docket is still pending at FERC.

There are 27 electric transmission facilities that have been issued Presidential permits at the U.S. border with Mexico. The voltage ratings of the majority of these transmission lines, depicted earlier in this report by NERC region, are at subtransmission, or distribution levels. The following is a list of those transmission facilities capable of transmitting larger volumes of electric energy in the wholesale marketplace. This list may be updated from time to time in the future if existing transmission lines are upgraded or if new transmission lines are constructed.

Owner	Location	Voltage	Presidential Permit No.
San Diego Gas & Elect.	Miguel, CA	230 kV	PP-68
	Imperial Valley, CA	230 kV	PP-79
El Paso Elect. Co.	Diablo, NM	115 kV	PP-92
	Ascarate, TX	115 kV	PP-48
Central Power & Light	Brownsville, TX	138 kV 69 kV	PP-94

Owner	Location	Voltage	Presidential Permit No.
Comision Federal de Electricidad	Eagle Pass, TX	138 kV	PP-50
	Laredo, TX	138 kV	PP-57
	Falcon Dam, TX	138 kV	None[2]

There are 79 transmission lines at the U.S. border with Canada for which Presidential permits have been issued. As with the bulk of the permitted facilities at the U.S. border with Mexico, the majority of these line are subtransmission, distribution, or not technically designed to transmit large volumes of wholesale electric energy. Following is a list of transmission facilities, located at the U.S. border with Canada currently capable of transmitting larger volumes of wholesale electric energy:

Owner	**Location**	**Voltage**	**Presidential Permit No.**
Basin Electric Power Coop.	Tioga, ND	230-kV	PP-64
Bonneville Power Administration	Blaine, WA	2 - 500-kV	PP-10
	Nelway, WA	2 - 230-kV	PP-36
			PP-46
Citizens Utilities	Derby Line, VT	120-kV	PP-66
Detroit Edison	St. Clair, MI	345-kV	PP-38
	Maryville, MI	230-kV	PP-21
	Detroit, MI	230-kV	PP-21
	St. Clair, MI	345-kV	PP-58
Eastern Maine Elect. Coop.	Calais, ME	69-kV	PP-32
Joint Owners of Highgate Project	Highgate, VT	345-kV	PP-82
Maine Electric Power Co.	Houlton, ME	345-kV	PP-43

[2]This transmission line was built as a result of a U.S./Mexico treaty and does not require a Presidential permit.

Maine Public Service Co.	Limestone, ME	69-kV	PP-12
	Fort Fairfield, ME	69-kV	PP-12
	Arostock County, ME	138-kV	PP-29
	Madawaska, ME	2 - 69-kV	PP-29
Minnesota Power	International Falls, MN	115-kV	PP-78
Minnkota Power	Roseau County, MN	230-kV	PP-61
New York Power Authority	Massena, NY	765-kV	PP-56
	Massena, NY	2-230-kV	PP-25
	Niagara Falls, NY	2-345-kV	PP-74
	Devils Hole, NY	230-kV	PP-30
Niagara Mohawk Power Corp.	Devils Hole, NY	230-kV	PP-31
Northern States Power	Red River, ND	230-kV	PP-45
	Roseau County, MN	500-kV	PP-63
Vermont Electric Transmission Co.	Norton, VT	± 450-kV DC	PP-76

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APPENDIX B

1997 REGIONAL ELECTRICITY TRANSACTIONS ACROSS INTERNATIONAL BORDERS

United States Utility/Firm	Canadian Utility/Firm	Interconnection Point	Electricity Imports (MWH)	Cost($)	Electricity Exports (MWH)	Revenues($)
NORTHEAST POWER COORDINATING COUNCIL (NPCC) - NEW ENGLAND STATES SYSTEMS						
Central Maine Power Company	Hydro Quebec	Colburn Gore, Maine	267	19,046	0	0
Citizens Utilities Company	Canadian Custom House; Hydro Quebec	Lake Memphremagog, Vermont; Derby Line Vermont	327,453	20,490,287	0	0
Eastern Maine Electric Cooperative	New Brunswick El. Power Commission; Fraser Cos, Ltd.	Calais, Maine; Forest City, Maine	130,582	6,034,728	0	0
Vermont Electric Transmission Company, Inc.	Hydro Quebec	Norton, Vermont	7,660,597	200,636,967	154,628	9,805,148
Joint Owners of the Highgate Project	Hydro Quebec	Highgate, Vermont	1,551,706	76,496,740	0	0
Maine Electric Power Company	New Brunswick El. Power Commission	Houlton, Maine	2,911,130	23,257,861	1/ 18,520	79,686 2/
Maine Public Service Co.	New Brunswick El. Power Commission	Fort Fairfield, Maine; Easton Township, Aroostock County, Maine; Madawaska, Maine	525,600	13,093,676	7,526	851,833
Vermont Electric Cooperative	Hydro Quebec	Derby Line, Vermont	11,301	330,065	0	1,017,595 3/
Fraser Companies, Ltd.	Fraser Companies, Ltd.	Matawaska, Maine	299,835	14,464,608	0	0
TOTAL NPCC (NEW ENGLAND)			13,418,471	354,823,978	180,674	11,754,262

United States Utility/Firm	Canadian Utility/Firm	Interconnection Point	Electricity Imports (MWH)	Cost($)	Electricity Exports (MWH)	Revenues($)
NORTHEAST POWER COORDINATING COUNCIL (NPCC) - NEW YORK SYSTEMS						
New York Power Authority	Ontario Hydro; Hydro Quebec	Niagara, New York; Massena, New York; Fort Covington, New York	3,096,286	55,003,999 4/	1,166,496	13,693,853 5/
Niagara Mohawk Power Corporation	Canadian Niagara Power Co; Hydro Quebec	Hogansburg-St. Regis, New York; York; Devil's Hole, New York; Buffalo-Ft. Erie, New York; Rainbow Bridge, New York	2,272,383	14,843,659	241,846 6/	4,114,639
Power Marketers 7/						
NAEC, Inc.	Ontario Hydro		0	0	283,554	0
Plum St. Enrgy Mrk	Ontario Hyrdo		0	0	320,647	6,647,028
Sonet Power Mrktg L.P.			0	0	28,901	585,809
	TOTAL NPCC (NEW YORK)		5,368,669	69,847,658	1,408,342	17,808,492

United States Utility/Firm	Canadian Utility/Firm	Interconnection Point	Electricity Imports (MWH)	Cost($)	Electricity Exports (MWH)	Revenues($)
EAST CENTRAL AREA RELIABILITY COORDINATION AGREEMENT (ECAR)						
Detroit Edison Company	Ontario Hydro	Waterman, Maryville, St. Clair, Michigan	3,097,274	66,694,974	1,712,100	40,684,786
St. Clair Tunnel Company	Ontario Hydro	Port Huron, Michigan	0	0	0	0
	TOTAL ECAR		3,097,274	66,694,974	1,712,100	40,684,786

United States Utility/Firm	Canadian Utility/Firm	Interconnection Point	Electricity Imports (MWH)	Cost($)	Electricity Exports (MWH)	Revenues($)
MID-CONTINENT AREA POWER POOL (MAPP)						
Basin Electric Cooperative	Saskatchewan Power Cooperative	Tioga, ND (Boundary Dam)	173,676	8/ 895,981	254,153	9/ 2,239,581
Boise Cascade Corporation	Boise Cascade Canada, Ltd.	International Falls, Minnesota	0	0	0	0
Minnesota Power and Light Co.	Manitoba Hydro Elec. Board; Ontario Hydro	Warroad, Roseau County, MN	2,012,299	10/ 27,537,362	137,666	11/ 1,762,095
Minnkota Power Cooperative	Manitoba Hydro Elec. Board	Pembina, ND; Warroad, Roseau Co, MN; Norwest Angle State Forest Reserve, MN	1,103,648	16,504,735	0	0
North Central Electric Cooperative, Inc.	Manitoba Dep't of Mines, Natural Res. and Environment	International Peace Garden	0	0	17	1,119
Northern Electric Cooperative, Asso.	La Croix Power Authority	Louis County, Minnesota	0	0	0	0
Northern Electric Cooperative, Inc.	Northern Electric Cooperative, Inc. Customers	Opheim, Montana	0	0	100	6,458
Northern States Power Company	Manitoba Hydro Electric Board	Pembina, ND; Warroad, Roseau County, MN	10,918,416	12/ 164,361,605	46,324	93,162
Roseau Electric Cooperative	Manitoba Hydro Electric Board	Roseau County, MN; Lake of the Woods County, MN	7	541	1,029	66,986
	TOTAL MAPP		**14,208,046**	**209,300,224**	**439,289**	**4,169,401**

United States Utility/Firm	Canadian Utility/Firm	Interconnection Point	Electricity Imports (MWH)	Cost($)	Electricity Exports (MWH)	Revenues($)
WESTERN SYSTEMS COORDINATING COUNCIL (WSCC)						
Bonneville Power Administration	BC Hydro; W. Kootena Power & Light Co., Ltd	Blaine, Washington	11,692,839	152,600,259	13/ 9,568,158	14/ 26,392,081
Glacier Electric Cooperative, Inc.	Glacier Electric Cooperative Custome	Del Bonita, Montana; Carway, Montana	0	0	230	12,682
Marias River Electri Cooperative, Inc. 7/	Southern Utilities, Ltd.	Sweetgrass, Montana	0	0	3,007	122,086
Portland General Electric Company	BC Hydro	Blaine, Washington	0	0	13,475	153,974
P.U.D. No. 1 of Pend Oreille County, WA	West Kootenay Power & Light Company, Ltd.	Nelway, Washington	0	0	15/ 375	8,526
Puget Sound Power and Light Company 7/	BC Hydro	Point Roberts, Washington	20,026	560,717	0	0
PG&E Energy Tradi 7/	Powerex	Blaine, WA	0	0	125,856	2,467,985
Powerex 7/	BC Hydro	Blaine, WA	0	0	161,238	0
Washington Water Power	BC Hydro; W. Kootena Power & Light Co., Ltd.	Blaine, WA	0	0	125,315	2,010,112
Western Systems Power Pool 16/	BC Hydro; W. Kootena Power & Light Co., Ltd.	Blaine, WA				
Idaho Power Co.			0	0	111,270	0
Montana Power Co.			0	0	200	0
Puget Sound P&L			0	0	110,190	0
Washington WP			0	0	98,854	0
	TOTAL WSCC w/CANADA		11,712,865	153,160,976	10,317,938	31,154,764

United States Utility/Firm	Canadian Utility/Firm	Interconnection Point	Electricity Imports (MWH)	Cost($)	Electricity Exports (MWH)	Revenues($)
ALASKA						
Westmin Resources Limited	BC Hydro	No connection with U.S. firm. Line goes through Alaska.	0	0	0	0
	TOTAL ALASKA		0	0	0	0
TOTAL TRANSACTIONS w/CANADA			47,805,325	853,827,810	14,058,343	105,571,705

United States Utility/Firm	Mexican Utility/Firm	Interconnection Point	Electricity Imports (MWH)	Cost($)	Electricity Exports (MWH)	Revenues($)
ELECTRIC RELIABILITY COUNCIL OF TEXAS (ERCOT)						
Central Power and Light Company	Comision Federal de Electricidad	Amistad Dam, Del Rio, TX; Eagle Pass, TX; Laredo, TX	6,211	182,823	401	13,599
Rio Grande Electric Cooperative, Inc.	Comision Federal de Electricidad	Heath Crossing, TX; Lajitas, TX; Castolon, TX; Candelaria, TX; Constock, TX	0	0	1,762	178,587
West Texas Utilities Company	Comision Federal de Electricidad	Redford, TX 17/ Presidio, TX	25	0	18/ 648	28,618
	TOTAL ERCOT		6,236	182,823	2,811	220,804

United States Utility/Firm	Mexican Utility/Firm	Interconnection Point	Electricity Imports (MWH)	Cost($)	Electricity Exports (MWH)	Revenues($)
WESTERN SYSTEMS COORDINATING COUNCIL (WSCC)						
Arizona Public Service Co.	Comision Federal de Electricidad	San Luis, Douglas, AZ; El Centro, CA	0	0	45,270	1,340,335
Citizens Utilities Company	Comision Federal de Electricidad	Nogales, Arizona; Lochiel, Arizona	0	0	1,648	126,091
El Paso Electric Company	Comision Federal de Electricidad	El Paso, Texas	0	0	1,100,719	33,884
Trico Electric Cooperative	Comision Federal de Electricidad	Sasabe, Arizona	0	0	1,442	138,058
San Diego Gas and Electric	Comision Federal de Electricidad	Community of San Ysidro, City of San Diego, California	16,493	164,958	285,153	8,009,633
Southern Cal. Edison Co.	Comision Federal de Electricidad	Tijuana-Miguel Interconnection; La Rosita-Imp. Valley Interconnection;	0	0	1,340	55,670
Imperial Irrigation District	Comision Federal de Electricidad	Calexico, California	0	0	11,894	472,350
Powerex	Comision Federal de Electricidad		0	0	53,430	1,248,560
	TOTAL WSCC w/MEXICO		16,493	164,958	1,500,896	11,424,581
	TOTAL TRANSACTIONS w/MEXICO		22,729	347,781	1,503,707	11,645,385
GRAND TOTAL U.S. INTERNATIONAL TRANSACTIONS			47,828,054	854,175,591	15,562,050	117,217,090

FOOTNOTES

1/ The energy was recieved by and transmitted over the facilities of Maine Electric Power Company. The energy was paid for by the purchasing utility, Central Maine Power Company.

2/ The power transmitted from MEPCO to Canada represents the Maine Public Service and Eastern Maine Electric Coop shares of the Maine Yankee and W. F. Wyman No. 4 powerplants that are delivered to U.S. utilities via New Brunswick Electric Power Commission for only a wheeling charge.

3/ All revenues had no associated exports.

4/ Includes 304,244 MWH of exchange imports.

5/ Includes 219,850 MWH of exchange exports.

6/ Includes revenue for wheeling power from Canada to various U.S. utilities.

7/ These entities are power marketers that exported electric energy in 1997. Revenues associated with these exports were not reported in all cases.

8/ Includes 103,525 MWH of exchange imports.

9/ Includes 102,750 MWH of exchange exports.

10/ Includes 28,183 MWH of exchange imports.

11/ Includes 26,060 MWH of exchange exports.

12/ Includes 3,960,619 MWH of exchange in

13/ Represents consideration paid by U.S. utilities in Washington, Oregon, Idaho, California and Montana based on contractual agreements with West Kootenay Power & Light and British Columbia Hydro. These costs were not actually incurred by BPA.

14/ This represents the revenues received by BPA from British Columbia Hydro and West Kootenay Power & Light for pı wheeling services between British Columbia Hydro and the utilities in the states listed in Footnote 13.

15/ All 375 MWH are exchange exports.

16/ These values represent quarterly export data for 1997. All exports are wheeled through the Bonneville Power Administration. Members of the Western Systems Power Pool that reported exports did not report any as revenues. All members of the Western Systems Power Pool (32) are authorized to export electricity across the Bonneville systems.

17/ All 25 MWH are exchange imports.

18/ Includes 19 MWH of exchange exports.